

THERMOELECTRICALLY CONTROLLED X-RAY DETECTOR ARRAY

ABSTRACT OF THE DISCLOSURE

Disclosed is an X-ray detector assembly for use in a computed tomography system. The X-ray detector assembly comprises an array of detector cells coupled between two rails. A thermoelectric cooler is coupled to an end of each of the rails, and is controlled to alternatively heat or cool the detector array to maintain the array in a substantially isothermal and thermally stable condition. The detector assembly preferably includes both passive and active cooling devices and insulation materials for controlling the temperature of the detector assembly. An electrical heater coupled at the center of the detector array can be used in conjunction with the TEC's to control the temperature profile of the detector array, and to minimize changes in the temperature gradients.